

## WHAT IS CLAIMED IS

1. A method for determining characteristics of an object having a grained surface, comprising the steps of:
  - providing a light source;
  - providing a TV camera;
  - with said light source, projecting a zone of light on said object;
  - imaging said zone of light on said object with said TV camera to provide zone image data which is dependent on the grain of said object, and
  - analyzing said zone image data to determine at least one characteristic of said object.
2. A method according to claim 1 wherein said object is lumber.
3. A method according to claim 1 including the further step of determining the quality of said object using said axis data.
4. A method according to claim 3 wherein said quality is related to the grade of said lumber.
5. A method according to claim 1 wherein a plurality of zones are projected at a plurality of spaced positions on said object.
6. A method according to claim 1 wherein said projected zone is a spot.

7. A method according to claim 1 wherein said TV camera employs a photo-detector array.

8. A method according to claim 7 wherein said array is pixel addressable.

9. A method according to claim 1 wherein said analysis step includes determining from said zone image data, at least one axis of said zone image indicative of said grain.

10. A method according to claim 9 including the further step of determining the angle of said zone image axis.

11. A method according to claim 9 including the further step of determining a change in angle of said zone image axis.

12. A method according to claim 9 including the further step of determining the angle of said zone image axis from a norm.

13. A method according to claim 12 wherein said norm is represented by an axis substantially parallel to the axis of said object.

14. A method according to claim 1 wherein said light source is a laser.

15. A method according to claim 1 wherein said light source is controlled to allow operation over a wide range of object reflectivity conditions.
16. A method according to claim 1 wherein a parameter of said TV camera is controlled to allow operation over a wide range of object reflectivity conditions.
17. A method according to claim 1 wherein said light source and said TV camera are controlled to allow operation over a wide range of object reflectivity conditions.
18. A method according to claim 1 wherein said TV camera employs at least one PSD detector.
19. A method according to claim 5 wherein only a fraction of the object is illuminated.
20. A method according to claim 1 wherein more than one TV camera is employed to image said zone.
21. A method according to claim 1 wherein more than light source is employed project a zone on said object.

22. A method according to claim 1 wherein said projected zone is of arbitrary shape.
23. A method according to claim 1 including the further step of determining the grayscale intensity value of points within said zone image.

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